

REMARKS

I. Status of Claims

Claims 1-15 are all the claims pending in the application.

Claim 1 is amended to recite that the inventive method consists of the claimed regeneration (immersing, removing the catalyst from the regeneration water and removing water from the catalyst) and treatment steps. Claim 1 is further amended to recite that the NO_x removal catalyst is in the form of a columnar honeycomb structure, and that the NO_x removal catalyst is bubbled from for 1 to 30 minutes at ambient temperature in regeneration water. Namely, the NO_x removal catalyst to be regenerated is immersed in regeneration water while bubbling is maintained from the catalyst. Support for the amendment to claim 1 can be found, for example at page 17, lines 23-26 of the present specification.

No new matter is added. Accordingly, Applicants respectfully request entry of the Amendment.

II. Response to Claim Rejection Under 35 U.S.C. § 112, first paragraph

Claims 1-15 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Specifically, the Examiner's view is that there is insufficient support for the limitation "without ultrasonic treatment" in the specification as originally filed. In response, claim 1 has been amended to delete the subject limitation so as to obviate the rejection under 35 U.S.C. § 112, first paragraph. Withdrawal is respectfully requested.

III. Response to Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-11 were rejected over Dittmer, et al. (U.S. Patent No. 6,241,826), optionally in view of Schneider, et al. (U.S. Patent No. 6,232,254); and, claims 12-15 were rejected over

Dittmer and optionally Schneider as applied to claims 1-11, and further in view of Sueyoshi, et al. (JP 53-125964).

Claims 1-11 are patentable over Dittmer, optionally in view of Schneider, and claims 12-15 are patentable over Dittmer, optionally Schneider and further in view of Sueyoshi, at least for the following reasons.

Claim 1, as currently amended, recites a method for regenerating an NO_x removal catalyst employed in a flue gas NO_x removal apparatus. The method consists of a regeneration step of immersing the NO_x removal catalyst in the form of a columnar honeycomb structure, with bubbling from the NO_x removal catalyst, from 1 to 30 minutes at ambient temperature in regeneration water containing substantially no chlorine and no cleaning component (in addition to removing the catalyst from the regeneration water and removing water from the catalyst); and a treatment step.

When a catalyst having a honeycomb structure is simply immersed in water, bubbling occurs in the immersed catalyst, whereby the bubble break-up action contributes to regeneration of the catalyst. Since a honeycomb catalyst has a porous structure, when water enters micropores present in the catalyst, air bubbles escape while contacting the inner surfaces of the pores. Thus, deteriorated substances adhering on the inner surfaces of the pores in the catalyst can be removed, to thereby regenerate the catalyst.

In contrast, to the “bubble break-up” action of the present invention, Dittmer discloses a regenerating method which includes placing a catalytic converter in motion in a cleaning solution and subjecting it to ultrasonic treatment. Further, the transitional language “consists of” as recited in amended claim 1 excludes steps, such as ultrasonic treatment taught by Dittmer and using abrasives as taught by Schneider, other than those steps specifically claimed. Sueyoshi

which discloses regeneration of a catalyst unit by selectively circulating between a reaction chamber and a regenerator, does not cure the deficiencies of Dittmer and Schneider as to amended claim 1. Importantly, none of the cited references teaches or suggests the concept of the invention in which effective regeneration requires no more than immersing an NO_x removal catalyst in the form of a columnar honeycomb structure, with bubbling from the NO_x removal catalyst, from 1 to 30 minutes at ambient temperature in regeneration water containing substantially no chlorine and no cleaning component; removing the catalyst from the regeneration water; and removing water from the catalyst. Therefore, the presently claimed regeneration process would not be obvious to a person of skill in the art based on the teachings of Dittmer, Schenider and Sueyoshi.

In addition, through such a regeneration mechanism, the honeycomb catalyst can be regenerated while the honeycomb structure remains intact. Therefore, the present invention does not cause cracking or breakage of the honeycomb catalyst, which is a problem encountered in the prior art catalysts, and is discussed in the section entitled "Background Art" in the present specification. See, for example, the second full paragraph at page 3 of the present specification.

In view of the above, Applicant respectfully submits that claims 1-15 are patentable over the cited references, and accordingly, request reconsideration and withdrawal of the § 103(a) rejections of claims 1-15.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,



Abraham J. Rosner
Registration No. 33,276

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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